REMARKS

Claim 36-39 have been amended. No new matter has been added. Claims 36-39 and 118-138 are pending in this application. Support for the amendments to claim 36 can be found in the specification, as discussed below. New claims 118-138 are supported by the withdrawn claims.

Telephone Interview

Applicants conducted a telephone interview with Examiner Mary E. Ceperley on February 17, 2005. During the telephone interview, the points raised in the Office Action were discussed. Specifically, the rejections of claim 36 under 35 U.S.C. § 112, 2nd paragraph and 35 U.S.C. § 112, 1st paragraph in the Office Action were discussed.

Rejections under 35 U.S.C. § 112

Rejections under 35 U.S.C. § 112, 2nd paragraph

Claim 36 stands rejected under 35 U.S.C. § 112, 2nd paragraph, as allegedly being indefinite. Specifically, the Office Action asserts that the term "... on said substrate ..." is unclear as to how the reaction product is oriented with respect to the substrate and as to how the reaction product is attached to the substrate.

The rejection of claim 36 under 35 U.S.C. § 112, 2nd paragraph, has been obviated by amendment. As amended, claim 36 recites that the reactant ligand is covalently bonded to a fusion polypeptide, and attached to the substrate of the protein chip.

The presence of a covalent bond between a fusion polypeptide and a reactant ligand is described in the specification, for example at page 13, lines 8-9. The specification teaches the use of a variety of reactant ligands and capture polypeptides, for example at pages 13-17. The attachment of a reactant ligand on a substrate is described in the specification, for example through the use of linking groups, at least at p. 38 through p. 50. The use of various types of fusion polypeptides is taught in the specification, for example at pages 18-20 and 31-35; methods of making fusion polypeptides are taught at pages 35-38. The immobilization of reactant ligands,

including SAMs and SAM synthesis is taught in the specification, at least at pages 38-50.

Attached is a declaration of Dr. Brian Kay. Dr. Kay testifies in paragraph 9 that "many other types of surfaces and linker are possible. ... Regardless of the material and linker choice, the enabling concept is to use a chemical ligand to capture a fusion protein in a covalent manner without any loss of activity or proper conformation of the displayed element." In paragraph 10, Dr. Kay testifies how the present invention provides an improvement over the existing art at the time of filing. In paragraph 12, Dr. Kay discusses how he personally had a "eureka" moment when he was first exposed to the present invention. This invention is not limited to specific surfaces, linkers, fusions, etc. It is broadly applicable and a skilled artisan appreciates that as demonstrated by Dr. Kay's comments.

Thus, applicants respectfully traverse the Office Action's interpretation of the phrase "... on said substrate ..." as being limited to a reaction product that is adjacent to and/or directly attached to the substrate. In view of the above, claim 36 is in full compliance with 35 U.S.C. § 112, 2nd paragraph. Applicants request that the 35 U.S.C. § 112, 2nd paragraph rejections be withdrawn.

Rejections under 35 U.S.C. § 112, 1st paragraph

Claim 36 stands rejected under 35 U.S.C. § 112, 1st paragraph, as allegedly failing to comply with the enablement and written description requirements.

Specifically, Claim 36 stands rejected under 35 U.S.C. § 112, 1st paragraph, as allegedly not enabled by the specification with respect to making a protein chip as claimed, and specifically with respect to immobilizing reactant ligands. The Office Action asserts that the specification:

> ... while being enabling for the preparation of a "protein chip" comprised of "a substrate and a reaction product of a reactant ligand and a fusion polypeptide" by means involving linkers such as those described in claims 37-39, does not reasonably provide enablement for the "immobilization" of said "reaction product" by any other means. (Office Action at p. 2, section 3)

With respect to the issue of immobilization of a fusion polypeptide directly to a surface, the rejection has been obviated by amendment. As noted above, amended claim 36 recites that the reactant ligand is immobilized on the substrate of the protein chip. The immobilization of a reactant ligand on a substrate is described in the specification, at least at p. 38, line 7 through p. 51, line 14.

With respect to the issue of specific examples of immobilization of reactant ligands, the rejection is respectfully traversed. As noted above, the specification contains numerous specific examples of a variety of immobilized reactant ligands, the reaction of these reactant ligands with polypeptides, and the resultant immobilization of the reaction products. See, for example, the disclosure of self assembled monolayers (SAMs) at least at p. 39, line 23 through p. 42, line 24. This section provides a general description of the synthetic methods that may be used to link a group " –T " containing a reactant ligand to an alkanethiol or a disulfide, including specific reagents and protecting groups. Additional specific examples of immobilizations, including reaction schemes, are provided throughout the specification, for example at p. 42, line 25 through p. 51, line 14; and in the "EXAMPLES" section, for example at p. 61, line 3 through p. 65, line 9; p. 68, line 23 through p. 72, line 24; and p. 73, line 20 through p. 75, line 2.

Again, the attached declaration by Dr. Kay demonstrates that the present invention is enabled as to a broad range of surfaces and linkers and protein fusions. (see paragraphs 8 *et seq*).

The specification provides both generic and specific disclosure of the immobilization of reactant ligands, immobilization of the reaction products of reactant ligands with fusion proteins, and the use of these immobilizations in the preparation of protein chips as recited in the claims. The disclosure includes both general teachings and specific working examples and experimental data. Accordingly, claim 36 is in full compliance with 35 U.S.C. § 112, 1st paragraph, and applicants request that this rejection be withdrawn.

Objection

Claims 37-39 stand objected to for depending on currently rejected claim 36. Applicants have amended these claims to include base claim 36 – as such these claims should be allowable at this time.

Conclusion

In conclusion, all of the grounds raised in the outstanding Office Action for rejecting the application are believed to be overcome or rendered moot based on the amendments and remarks above. Thus, it is respectfully submitted that all of the presently presented claims are in condition for allowance. Should the Examiner feel a discussion would expedite the prosecution of this application, the Examiner is kindly invited to contact the undersigned.

Also submitted at this time is a PETITION FOR EXTENSION OF TIME for THREE (3) MONTHS.

Respectfully submitted,

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